STREAM AND RIPARIAN CORRIDOR RESTORATION WORKSHOP
INNOVATIVE APPROACHES TO STREAM STABILIZATION AND RESTORATION

DATES: November 27 to November 29, 2007
TIME: 9:00 am to 5:00 pm

LOCATION: NJ Agriculture Experiment Station
Clifford and Melda C. Snyder Research and Extension Farm
140 Locust Grove Road, Pittstown, NJ 08867

INSTRUCTOR: Dave Derrick, Research Hydraulic Engineer
Corps of Engineer's Research & Development Center
Coastal & Hydraulics Laboratory (ERDC-CHL)

This exciting workshop will introduce the methodologies and procedures for initiating, planning, analyzing, and ultimately designing long-term sustainable river and stream stabilization or restoration projects. Innovative, environmentally sensitive, and cost-effective approaches to channel restoration will be discussed. Comprehensive case studies will also be presented. A daily agenda is available for more details.

A full day of field trips to local stream sites is scheduled for November 29th. Rain gear, waders and field clothes are recommended. Each participant will receive a CD of all power-point presentations on the first day. See Attachment 1 for directions and travel information.

Workshop Sponsors: U.S. Army Corps of Engineers Water Operations Technical Support (WOTS) Program**;** the Philadelphia District Corps of Engineers; North Jersey RC&D; and Rutgers Cooperative Extension Water Resources Program.

Register early! Workshop space is limited!

REGISTRATION FORM

Registration Fee is $85.00. Please contact Dottie it you need to discuss this fee.
CEU's will be available.

Name: _____ **Email:** _____

Affiliation: _____ **Phone:** _____

Address: _____ **Fax:** _____

City/Zip: _____

Please choose your payment option:

- ☐ **Check Enclosed. Made payable to North Jersey RC&D**
- ☐ **Credit Card:** (Please complete the following for your credit card payment)

Credit Card Type: **Visa** **Mastercard**	Expiration Date: _____
Credit Card Number: _____	
Name as it appears on the card: _____	
Card Billing Address: _____	

Submit Registration Form to Dottie Dicheck by e-mail or fax (not both):
Email: ddicheck@northjerseyrcd.org or Fax 908-735-0744

Questions? Call Dottie at 908-735-0733 Ext 101

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ATTACHMENT 1

DIRECTIONS TO CLASSROOM
NJ Agriculture Experiment Station - Snyder Farm

FROM NORTH: Take I-78 to Exit 15. Turn left at light at bottom of exit ramp onto Pittstown Road (Route 513 South). Stay on Pittstown Road for approximately 6 miles. Road changes from Rt 513 to Rt 612 in Pittstown. (DO NOT TURN WHEN ROUTE 513 BEARS RIGHT). Turn left onto Locust Grove Road at Rutgers sign. Snyder Farm is 1/2 mile on the left.

FROM SOUTH: Take Route 202/31 North to the Flemington traffic circle. Take Route 12 West at circle for approximately 5.2 miles. Turn right onto Pittstown Road (Rt 615 North) which will be the second road coming in from the right after Shell Gas Station (look for Leon's Sod Farm sign). Go 3.5 miles to Locust Grove Road (look for Rutgers sign) and turn right. Snyder Farm is 1/2 mile on the left.

HOTEL ACCOMODATIONS:

Holiday Inn Select
111 Route 173, Clinton, NJ 08809. Telephone: (908) 735-5111
http://www.holiday-inn.com (about 15 minutes to classroom, follow directions "From North")

Hampton Inn Clinton
16 Frontage Road, Clinton, NJ 08809 Telephone: (908) 713-4800
http://www.hamptoninn.com (about 15 minutes to classroom, follow directions "From North")

- Clinton is a charming, historic town with several small eateries and shopping.
- Restaurant within walking distance: Cracker Barrel
- To learn more about the Clinton area visit www.clintonguild.com

Courtyard Marriott
300 Corporate Drive, Lebanon, NJ 08833. Telephone: (908)
http://marriott.com (about 30 minutes to classroom)

Hampton Inn Flemington
14 Royal Road, Flemington, New Jersey, USA 08822 Telephone: (908) 284-9427

- To learn more about the Flemington area visit www.flemington-nj.com
- Restaurants within walking distance: Perkins, Panera, Chilis.
- Travel time to classroom is about 25 minutes

Stream Investigation, Stabilization & Design Workshop

With an emphasis on Innovative Approaches to Stream Stabilization and Restoration

27 – 29 NOVEMBER 2007

NJ Agriculture Experiment Station, Clifford and Melda C. Snyder Research and Extension Farm
140 Locust Grove Road
Pittstown, NJ 08867

WORKSHOP OVERVIEW AND GOALS

Develop a philosophy of bank stabilization design that emphasizes an understanding of the stream as a complex inter-related system that encompasses both local and system-wide processes and problems.

Apply the concepts of grade control and the Channel Evolution Model (CEM).

Get tips on how to develop appropriate project goals.

Learn about innovative bank protection methods and how to choose the appropriate method or combination of techniques.

Discuss the importance of project constructability, monitoring, and maintenance

Learn how to read a stream and analyze a streambank erosion problem with an experienced practitioner.

Perform a series of in-the-field site analyses, understanding the role of project goals in the development of conceptual flow analyses, and designing stabilization plans that relate to the project performance goals.

Receive a CD of useful handouts, visuals, and a comprehensive glossary.

Stream Investigation, Stabilization & Design Workshop

AGENDA

DAY 1 Tuesday, 27 November 2007

9:00	-	9:20	Student and Teacher Introductions
9:20	-	10:15	The Philosophy of Restoration (Goal and Function Based Design), Project Planning, Monitoring, & How Streams Dissipate Energy
10:15	-	10:30	**BREAK** (Drinks and snacks provided each day)
10:30	-	12:00	The Channel Evolution Model (CEM) & Grade Control
12:00	-	1:00	**LUNCH** (Lunch provided each day)
1:00	-	2:00	Everything Outside the Active Channel - The Importance of the Riparian Buffer Zone, Watershed Management Problems, Rain Gardens, Sediment Issues, etc.
2:00	-	4:00	Resistive and Continuous Bank Stabilization Methods (with break)
4:00	-	5:00	Recently Developed Innovative Techniques to Restore Function to Aquatic and Terrestrial Areas

DAY 2 Wednesday, 28 November 2007

9:00	-	9:10	Announcements and Housekeeping
9:10	-	10:30	Redirective, Indirect, & Discontinuous Methods: Retards, Permeable Dikes, Jacks, Vane Dikes, Impermeable Structures Normal to Flow (Transverse Dikes, Contraction Dikes, Spur Dikes Both High & Low and Short & Long) L-Head & T-Head Dikes, Downstream Angled Structures, Upstream Angled Structures (Rock Vanes), the Bendway Weir, and Combinations of Redirective and Resistive Methods (with break).
10:15	-	10:30	**BREAK**
10:30	-	12:00	Bioengineering Philosophy and Methods for Streambank Protection Using Native Plants (with break)
12:00	-	1:00	**LUNCH**
1:00	-	2:30	TWO CASE STUDIES - Putting it All Together – Catt Creek @ Savage Road Highway Protection Project (resistive, redirective, & bioengineering on an incised channel with an engineered floodplain bench with integrated vernal pools and wetlands), and The McKinstry Creek Complete Channel and Floodplain Realignment Project
2:30	-	3:00	THE ABRUPT PLANFORM MODIFIERS - Five methods to replicate small radius 90 degree bends, impinging flow situations, and bends that exit into the middle of the next bend (no crossing in between) {Regular, Wrong-Way and Twin Spin Boil-Up Pools; Angle

Slams and Grand Slams}.

3:00 - 3:15 How to Choose a Bank Protection Method

3:15 - 3:30 Project Construction

3:30 - 4:45 How to Conduct a Field Investigation of a Streambank Erosion Problem

a. Fundamentals of Fluvial Geomorphology
b. How to Read a Stream
c. Field Equipment & Safety

4:45 - 5:00 Review (Dave's Top 10, 46 Ways to Stay out of Trouble)

DAY 3 Thursday, 29 November 2007

9:00 - 5:00 Field Trip: Site Analyses of Three Stream Sites

- Development of project performance goals (function based)
- Analysis of existing, historical, and future flow and erosion processes and conditions
- Flow visualization of proposed project (based on project goals)
- Development of several stream stabilization conceptual designs
- Analyze overall effects of conceptual design on the stream system and riparian corridor

Site 1 South Branch of the Raritan River Project (at the confluence with the Neshanic River) Constructed Fall 2000

Site 2 Walnut Brook: 2008 Riparian Restoration Project
Dvoor Farm, Flemington, NJ
Read the stream, fluvial geomorphology, wetland restoration.

Site 3 Hoffman Park Stream Restoration: 2006 Channel Restoration Project Mulhockaway Creek, Flemington, NJ
Restoration of 700 linear feet
Conducted through USEPA Targeted Watershed Grant for the Raritan Basin.

4:00 - 5:00 Wrap-Up Workshop